Enrollment No: _____ Exam Seat No:_____

C.U.SHAH UNIVERSITY

Summer Examination-2018

Subject Name : Modern Physics

Subject Code : 4SC03PHE1 Branch :B.Sc. (All)

Semester : 3 Date :06/04/2018 Time :02:30 To 05:30 Marks :70

Instructions:

(1) Use of Programmable calculator & any other electronic instrument is prohibited.
(2) Instructions written on main answer book are strictly to be obeyed.
(3) Draw neat diagrams and figures (if necessary) at right places.
(4) Assume suitable data if needed.

Q-1		**Attempt the following questions:**	**(14)**
	a)	Define stress	01
	b)	What do mean by strain?	01
	c)	What is cantilever?	01
	d)	How many are types of quantum numbers?	01
	e)	Define laminar flow.	01
	f)	Write spin value of an electron.	01
	g)	Write Galilean transformation equations.	01
	h)	What do you mean by phase space?	01
	i)	Write equation of Newton's law of viscous flow.	01
	j)	Define: macroscopic state.	01
	k)	Write mathematical expression of Bragg's law.	01
	l)	What is Paschen-Back effect?	01
	m)	Who discovered X-rays?	01
	n)	Define: critical velocity.	01

Attempt any four questions from Q-2 to Q-8

Q-2		**Attempt all questions**	**(14)**
	a)	Write Lorentz's Transformation and their inverse transformation equations.	04
	b)	Explain length concentration problem in relativity.	05
	c)	Discuss in brief time dilation problem in relativity.	05
Q-3		**Attempt all questions**	**(14)**
	a)	Originate the formula of cantilever loaded at free end.	07
	b)	Obtain Poiseuille's formula for flow of liquid through a tube.	07
Q-4		**Attempt all questions**	**(14)**
	a)	What is Reynolds's number?Write its physical significance.	05
	b)	State and discuss Stoke's law of viscous medium.	04
	c)	Explain equal a priori probability.	05
Q-5		**Attempt all questions**	**(14)**
	a)	Explain briefly continuous spectra.	04

	b)	Discuss j-j coupling theory of spectra.	05
	c)	Write short note on microcanonical ensemble.	05
Q-6		**Attempt all questions**	**(14)**
	a)	Describe briefly L-S coupling theory of molecular spectra.	07
	b)	Discuss in brief Gibbs paradox.	07
Q-7		**Attempt all questions**	**(14)**
	a)	How can X-ray produce practically? Discuss briefly with neat and clean diagram.	07
	b)	What is quantum numbers? Discuss briefly with their physical interpretation.	07
Q-8		**Attempt all questions**	**(14)**
	a)	State Liouville's theorem.	05
	b)	Write short note on Ether hypothesis.	04
	c)	Discuss Moseley's law.	05